ABSTRACT OF THE DISCLOSURE

A method for producing regenerable sulfur sorbents in which a support material precursor is mixed with isopropanol and a first portion of deionized water at an elevated temperature to form a sol mixture. A metal oxide precursor comprising a metal suitable for use as a sulfur sorbent is dissolved in a second portion of deionized water, forming a metal salt solution. The metal salt solution and the sol mixture are mixed with a sol peptizing agent while heating and stirring, resulting in formation of a peptized sol mixture. The metal oxide precursor is dispersed substantially throughout the peptized sol mixture, which is then dried, forming a dry peptized sol mixture. The dry peptized sol mixture is then calcined and the resulting calcined material is then converted to particles.